CLAIMS

WHAT IS CLAIMED IS:

1.   A system for recording and synthesizing position data, comprising:

a reference receiver having a known position, wherein the reference receiver includes reference position data;

a mobile receiver that has a variable position, wherein the mobile receiver includes raw position data; and

a processor that generates trajectory path data based on the raw position data and the reference position data, wherein the trajectory path data corresponds to a trajectory path of the mobile receiver.

2.   The system of claim 1, wherein the reference receiver receives at least one global positioning system (GPS) signal from at least one GPS satellite, and wherein the reference receiver generates an error correction signal as the reference position data corresponding to the GPS satellite based on the GPS signal.

3.   The system of claim 2, wherein the processor polls the reference receiver a plurality of times at a given execution rate and generates a plurality of error correction signals.

4.   The system of claim 3, wherein the execution rate is variable.

5.   The system of claim 2, wherein the error correction signal is a difference between an ideal GPS signal travel time and an actual GPS signal travel time, and wherein the processor generates the trajectory data by correcting the raw position data using the error correction signal.

6.   The system of claim 1, wherein the reference position data describes the known position of the reference receiver in a global coordinate system, and wherein the

raw position data describes relative positions between the reference receiver and the mobile receiver.

7.   The system of claim 6, wherein the processor generates the trajectory path data by converting the raw position data from the relative positions between the reference receiver and the mobile receiver into the global coordinate system.

8.   The system of claim 1, wherein at least one of the raw position data and the reference position data is a series of at least one of position data and time data.

9.   The system of claim 1, further comprising a memory for storing at least one of the reference position data, the raw position data and the trajectory path data.

10.   The system of claim 9, further comprising an external device having an interface that couples with the memory for downloading at least one of the reference position data, the raw position data and the trajectory path data to the external device, and

wherein the external device includes a display for generating a visual display of the trajectory path data.

11.   The system of claim 10, wherein the external device includes an external device memory for storing a plurality of discrete trajectory path data corresponding to a plurality of trajectory paths.

12.   The system of claim 11, wherein the external device further includes terrain visualization data corresponding to a terrain, and wherein the external device combines the discrete trajectory path data with a terrain dataset generated from the terrain visualization data to form a composite simulation dataset to be displayed on the display.

13.   The system of claim 12, wherein the composite simulation dataset can be viewed from more than one viewing perspective.

14.   The system of claim 10, wherein the external device further includes terrain visualization data corresponding to a terrain, and wherein the external device combines the trajectory path data with a terrain dataset generated from the terrain visualization data to form a composite simulation dataset to be displayed on the display.

15.   The system of claim 14, wherein the composite simulation dataset can be viewed from more than one viewing perspective.

16.   The system of claim 14, wherein the external device stores the composite simulation dataset at a storage location accessible via the Internet that allows viewing of the composite simulation dataset from a remote location.

17.   The system of claim 14, wherein the external device stores the composite simulation dataset on a recording medium.

18.   A system for recording and synthesizing position data, comprising:

a management station having a reference receiver with a known position, wherein the reference receiver generates reference position data;

a location recording device having a mobile receiver and designed to be carried by a mobile entity, wherein the mobile receiver generates raw position data based on the entity's position;

a processor that generates trajectory path data based on the raw position data and the reference position data, wherein the trajectory path data corresponds to at least one trajectory path of the mobile receiver; and

an external device having an interface coupled with the processor to receive at least one of the raw position data, the reference position data, and the trajectory path data,

wherein the external device further includes terrain visualization data corresponding to a terrain, and wherein the external device combines the trajectory path data with the terrain dataset generated from the terrain visualization data to form a composite simulation dataset.

19.   The system of claim 18, wherein the processor is located in the management station, and wherein the management station includes a reference data storage unit that stores the reference position data and that is coupled to the processor.

20.   The system of claim 18, wherein the location recording device further includes at least one of an audio recording device and a video recording device.

21.   The system of claim 18, wherein an interface between the location recording device and the processor is a wireless interface.

22.   The system of claim 18, wherein the reference receiver receives at least one global positioning system (GPS) signal from at least one GPS satellite, and wherein the reference receiver generates an error correction signal as the reference position data corresponding to each GPS satellite based on the GPS signal.

23.   The system of claim 22, wherein the error correction signal is a difference between an ideal GPS signal travel time and an actual GPS signal travel time, and wherein the processor generates the trajectory data by correcting the raw position data using the error correction signal.

24.   The system of claim 18, wherein the reference position data describes the known position of the reference receiver in a global coordinate system, and wherein the raw position data describes relative positions between the reference receiver and the mobile receiver.

25.   The system of claim 24, wherein the processor generates the trajectory data by converting the raw position data from the relative positions between the reference receiver and the mobile receiver into the global coordinate system.

26.   The system of claim 18, wherein the raw position data is at least one of a series of position data-stamps and time data-stamps.

27.   The system of claim 18, wherein the external device includes an external device memory for storing a plurality of discrete trajectory path data corresponding to a plurality of trajectory paths.

28.   The system of claim 27, further comprising a display that displays the composite simulation dataset combining the discrete trajectory path data with the terrain dataset.

29.   The system of claim 28, wherein the composite simulation dataset can be viewed from more than one viewing perspective.

30.   The system of claim 18, further comprising a display that displays the composite simulation dataset combining the trajectory path data with the terrain dataset.

31.   The system of claim 30, wherein the composite simulation dataset can be viewed from more than one viewing perspective.

32.   The system of claim 18, wherein the external device stores the composite simulation dataset at a storage location accessible via the Internet that allows viewing of the composite simulation dataset from a remote location.

33.   The system of claim 18, wherein the external device stores the composite simulation dataset on a recording medium.

34.   A method for recording and synthesizing position data, comprising the acts of:

generating reference position data corresponding to a known position for a reference receiver;

generating raw position data corresponding to a variable position of a mobile receiver; and

generating trajectory path data based on the raw position data and the reference position data, wherein the trajectory path data corresponds to a trajectory path of the mobile receiver.

35.   The method of claim 34, wherein the act of generating reference position data includes the act of receiving at least one global positioning system (GPS) signal from at least one GPS satellite and generating an error correction signal as the reference position data corresponding to each GPS satellite based on the GPS signal.

36.   The method of claim 35, wherein the act of generating reference position data further includes the acts of polling the reference receiver a plurality of times at a given execution rate and generating a plurality of error correction signals.

37.   The method of claim 36, wherein the execution rate is variable.

38.   The method of claim 34, further comprising the step of combining the trajectory path data with a terrain dataset generated from terrain visualization data to form a composite simulation dataset.

39.   The method of claim 38, wherein the terrain visualization data includes environment data corresponding to at least one environmental characteristic, and wherein

the method includes the step of selecting at least one environmental characteristic during the combining step.

40.   The method of claim 38, further comprising the step of providing more than one viewing perspective for the composite simulation dataset.

41.   The method of claim 34, further comprising the step of storing the composite simulation dataset in a storage location.

42.   The method of claim 41, wherein the storing step stores the composite simulation dataset in a storage medium.

43.   The method of claim 41, wherein the storing step stores the composite simulation dataset in an Internet-accessible storage location.

44.   A system for synthesizing trajectory path data corresponding to a trajectory path and generated from reference position data obtained from a known position and raw position data obtained from a variable position data, the system comprising:

a data source having terrain visualization data for generating a terrain dataset;

a processor for combining the trajectory path data with the terrain dataset to form a composite simulation dataset; and

a display that displays the composite simulation dataset.

45.   The system of claim 44, wherein the composite simulation dataset can be viewed from more than one perspective.

46.   The system of claim 44, wherein the data source further includes environment data that supplements the terrain visualization data for forming the terrain dataset.

47.   The system of claim 46, wherein the environment data includes information corresponding to environmental characteristics in the terrain dataset, and wherein the composite simulation dataset generated by the processor displays the environmental characteristics.

48.   The system of claim 44, wherein the processor combines trajectory path data corresponding to more than one trajectory path with the terrain dataset.

49.   The system of claim 48, wherein the composite simulation dataset is displayed from the first-person perspective, and wherein the display represents said more than one trajectory path with the terrain dataset by displaying additional participants following said more than one trajectory path.

50.   A system for distributing a composite simulation dataset generated from trajectory path data corresponding to at least one trajectory path, reference position data obtained from a known position, raw position data obtained from a variable position, and terrain visualization data, the system comprising:
        a storage location that stores the composite simulation dataset; and
        an interface that allows a user to play back the composite simulation dataset.

51.   The system of claim 50, wherein the storage location is a recording medium.

52.   The system of claim 50, wherein the storage location is accessible from a remote location via the Internet, and wherein the interface is a web site.

53.   The system of claim 52, wherein the interface allows the composite simulation dataset to be distributed via electronic mail.